

(57) **Abstract:** A polymeric solid electrolyte capable of conducting lithium ions which contains silylamide bonds in its polymer skeleton structure, for example, which is obtained by a method comprising subjecting a mixture of lithium silylamide and an organic compound having at least one carbon-carbon double bond to a polymerization in a dry atmosphere; and a lithium secondary cell using the polymeric solid electrolyte. The polymeric solid electrolyte is a "dry" polymeric solid electrolyte which contains counter ions forming lithium salts with lithium ions in its polymer skeleton structure and thus has a single ion electron conducting system wherein lithium ions alone are mobile ions, and hence has excellent conductivity, and further is easy to produce. The polymeric solid electrolyte can therefore be used for producing a novel lithium secondary cell which is an alternative for conventional lithium cells using an organic solvent and is safe and excellent in the capability of corresponding to a variety of shapes and has a high cell voltage.